

Appl. No. 10/650,614
Amndt. Dated September 26, 2005
Reply to Office Action of May 4, 2005

Docket No. IS01320AP
Customer No. 22917

Amendments to the Specification:

Please replace the paragraph starting on page 1, line 6 with the following:
Current production automobiles typically incorporate power steering systems wherein a driver's effort to steer are assisted by powered systems, such as a hydraulic systems that is driven electrically or mechanically from a pump attached to the engine. However, electrically-driven cars or hybrid cars typically do not have a running motor to drive a hydraulic system when the cars are not moving. In this case, there is no power-assist to help a driver turn the wheels of these cars, such as when trying to negotiate a parking spot. A hydraulic system could be driven by an electric motor, but this is inefficient as an electrical system could be used directly to provide steering assist. Further electrical power assist need not be available full time, as in a hydraulic system, but only as needed by a ~~driver~~ driver. As a result power is conserved and total fuel efficiency is increased.

Please replace the paragraph starting on page 3, line 21 with the following:

FIG. 1 shows a fault detection system for an electric power-assisted steering motor in accordance with the present invention. In a preferred embodiment, the motor 10 is a three-phase permanent-magnet synchronous motor (PMSM) driven by DC power from a vehicle power source such as a battery 18 through a three-phase inverter 16 that produces pulse-width modulated (PWM) voltages. When the PMSM drive is providing correct power steering assist, certain angular relations must exist between a motor voltage vector, motor current vector and rotor position angle. These angular relationships exist even during transient steering conditions. The present invention monitors particular angular relationships so that any fault that may cause unintended steering will be detected without having to wait for the system to reach steady state.

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